

Remarks

Claims 1-27 are pending, including new claim 27. Claims 1, 22-25 and 27 are in independent form.

It appears from an inspection of claim 10 that its dependence on claim 1 is erroneous. Accordingly, it is amended to depend on claim 9.

Applicants appreciate the suggestion of the Examiner for the content of a new claim. It has been added as claim 27 and is believed patentable over the cited prior art.

Claim Rejections - 35 U.S.C. 112

Claims 9 and 22 have been rejected, the phrase "for example" having been found to render the claims indefinite. These claims have been amended to delete the phrase.

Claim Rejections - 35 U.S.C. 102

Claims 1-6, 8-12, and 20-25 have been rejected under 35 U.S.C. 102 (b) as anticipated by Weddendorf (US 5,314,500), the Official Action simply stating, "See Fig. 2". It is submitted that the rejected claims are novel and inventive in light of Weddendorf.

Claims 1-6, 8-12, and 20-21

Weddendorf describes a manually adjustable device, wherein the user pulls on a control wire 72, disengaging a locking pin 66 from one of end holes 52 of a locking wheel 50, thereby allowing an elbow joint to be moved to a new position.

Claim 1 has been amended to render unambiguous the differences between the claimed invention and the teaching of Weddendorf. As stated in claim 1 (emphasis added), "a force may be applied to the limb urging the limb toward bending or rotational articulation." It is respectfully submitted that forces applied to the limb urging the limb toward bending or rotational articulation cannot possibly be read on the manual pulling of a control wire 72 in Weddendorf.

The coupling body of the claimed apparatus deals with “any said force applied to the limb urging the limb toward said at least one bending or rotational articulation”. Thus, the claim refers throughout to the force applied to the limb urging the limb toward bending or rotational articulation.

The claimed coupling body includes a resilient biasing mechanism for (a) “applying a predetermined biasing force holding the components in a fixed relationship to each other for normal use of the prosthetic limb” and (b) “only when said force applied to the limb exceeds a predetermined threshold safe level and thereby becomes sufficient to overcome the effect of the biasing force, the resilient biasing mechanism allows the components automatically to move in said at least one bending or axial rotational articulation”. The result is “failsafe protection of the limb from excessive force applied to the limb”.

Weddendorf describes no teachings or elements that give any result when “said force applied to the limb (urging the limb toward said at least one bending or rotational articulation) exceeds a predetermined threshold safe level.

The coupling body of Applicants’ claimed apparatus allows the components to move automatically. Weddendorf describes a manual change in position.

Weddendorf teaches no structure providing protection against excessive force applied to the limb.

Accordingly, it is submitted that claim 1 is not anticipated by Weddendorf. In addition, claims 2-6, 8-12, 20 and 21 are submitted to be patentable over Weddendorf, since they are dependent on claim 1.

Claims 22-25

Claims 22-25 recite “a coupling body coupling together the proximal and distal components with freedom to articulate when, in use, a bending and/ or torsional force is applied to the prosthetic limb only when the force exceeds a predetermined threshold safe level.”

Weddendorf describes no teachings of any change of coupling responding to a bending and/or torsional force applied to the prosthetic limb. Weddendorf describes a disengagement when wire 72 is pulled.

Weddendorf describes no teachings of any change of coupling responding to a bending and/or torsional force applied to the limb which exceeds a predetermined threshold safe level.

Weddendorf teaches no structure providing protection against excessive force applied to the limb.

Claims 22 and 23 describe that the coupling body has an automatically disengageable connector. Weddendorf describes a manual change in position.

Additionally, claim 23 recites a clutch-like mechanism, whereas Weddendorf uses a pin locking in a hole.

Additionally, claims 23-25 include adjustment means for increasing or decreasing the threshold level of torque on the prosthetic limb. No such means is found in Weddendorf.

Accordingly, claims 22-25 are submitted to be allowable over Weddendorf.

Claim Rejections - 35 U.S.C. 103

Claim 15 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Weddendorf and further in view of Poeschmann et al (US 6,352,560).

Claim 15, being dependent on claim 1, is submitted to have a number of important elements not taught by Weddendorf, as described above. In addition, Poeschmann does not disclose "universal articulation, substantially in the manner of a ball joint" of a prosthesis. It merely describes a hinge, essentially a two dimensional movement.

It is submitted that there is nothing to suggest that it would be obvious to one skilled in the art to add the claim 15 features missing in Weddendorf and in Poeschmann and combine the teachings of the two references along with all the missing features to achieve the claimed invention.

Claims 25-26 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Weddendorf and further in view of Rincoe (US 6,436,149).

Claims 25 has a number of important elements not taught by Weddendorf, as described above in connection with the 35 USC 102 rejection. Claim 26, being dependent on claim 1, is submitted to have a number of important elements not taught by Weddendorf, as described above in connection with claim 1.

As applied to claim 25, Rincoe does not teach "a coupling body coupling together the proximal and distal components with freedom to articulate when, in use, a bending and/ or torsional force is applied to the prosthetic limb only when the force exceeds a predetermined threshold safe level."

Rincoe does not teach a structure for changing coupling of a limb in response to bending and/or torsional forces, but instead describes one that reacts to a linear force along the limb.

As applied to claim 26, dependent on claim 1, Rincoe does not teach a mechanism that "only when said force applied to the limb exceeds a predetermined threshold safe level...allows the components automatically to move in said at least one bending or axial rotational articulation".

As described in connection with claim 25, Rincoe teaches changing coupling of a limb in response to a linear force, not for bending or axial rotational articulation.

Additionally, regarding claims 25 and 26, Rincoe makes no teaching of the claimed structure with freedom to articulate only when the force applied to the prosthetic limb exceeds a predetermined threshold safe level. Rincoe teaches a mechanism that locks when a linear force reaches a certain level.

Rincoe teaches no structure providing protection against excessive force applied to a limb.

It is submitted that there is nothing to suggest that it would be obvious to one skilled in the art to add the features of claims 25 and 26 that are missing in Weddendorf and in Rincoe and combine the teachings of the two references along with all the missing features to achieve the claimed invention.

Claims 7, 13, 14, 16-19 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Weddendorf and further in view of Yamashita et al (US 6,565,156).

Claims 7, 13, 14, 16-19 have a number of important elements not taught by Weddendorf, as described above in connection with claim 1, on which they depend.

Claim 7 recites "clutch teeth whereof the teeth are substantially symmetrical in profile whereby the clutch-like mechanism may be disengaged in either rotational direction of torque, clock-wise or anti-clockwise, applied to the prosthetic limb". Yamashita shows many figures, with nothing but teeth which are asymmetrical in profile, namely sloping more gradually from one side to the other, with an abrupt fall at the other side. This is the familiar ratchet shape for producing a ratcheting function. This is contrary to the teaching and claim of the present application, where the clutch-like mechanism may be disengaged in either rotational direction because of the symmetrical teeth profile.

Yamashita appears not to be relevant to claims 13, 14, 16-19.

Claim 13 recites, "socket is of a corresponding concave shape whereby a bending force applied to the prosthetic limb in use will cause the tip of the pin to ride outwardly up the socket wall". There is no corresponding structure in Weddendorf. In Weddendorf, the pin 66 is either in one of holes 62 or it is not; it cannot ride up out of a concave shape, because there is none. Additionally, Weddendorf teaches no change in coupling, in response to a bending force applied to the prosthetic limb.

Claim 14 is considered distinct from the references for the reasons given in connection with claim 13, on which it depends.

Claims 16-19 recite, "T-shaped formation at the end of one or both of the proximal and distal components that are adjacent each other, the head of the or each T-shaped formation being curved/ arcuate to facilitate tilting of one component relative to the other". Applicants cannot find anything in the cited references which might relate to this.

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Accordingly, claims 7, 13, 14, 16-19 not only differ from Weddendorf in the ways that claim 1 does, but they have additional features not shown by Weddendorf or Yamashita. It is submitted that there is nothing to suggest that it would be obvious to one skilled in the art to add the features of claims 7, 13, 14, 16-19 missing in Weddendorf and in Yamashita and combine the teachings of the two references along with all the missing features to achieve the claimed invention.

In summary, claims 7, 13, 14, 16-19 are submitted to be unobvious in view of the references cited.

Conclusion

In view of the above amendments and remarks, allowance of all pending claims is respectfully requested.

If at any time the Examiner wishes to discuss this application, he is invited to call V. Lawrence Sewell (Reg. No. 22,753) at (214) 349-8180, who is of Counsel to Attorney for Applicants.

Respectfully submitted,



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